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(54) 【発明の名称】 セメント、石膏用抗菌液剤

(57) 【要約】

【目的】 セメントや石膏を凝固形成させる水に希釈分散でき、且細菌類や黴菌類或いは酵母菌類等菌類全般に亘って抗菌性を発揮し、汚着や汚損を防止できるセメント、石膏用抗菌液剤を提供する。

【構成】 テトラクロロイソフタニロール若しくは4-メチルスルホニルテトラクロロピリジンからなる不活性塩素化合物が75乃至95%重量、及び2-セカンダリーブチルフェニル-N-メチルカーバメート若しくはジクエチレンビスジチオカーバメート或いはマンガニズエチレンビスジチオカーバメートからなるカーバメート系化合物が5乃至25%重量の割合で構成される抗菌成分が、少なくとも水に対し700ppm以上の濃度で混合希釈されてなる構成。

## 【特許請求の範囲】

【請求項1】 テトラクロロイソフタロニル若しくは4-メチルスルホニルテトラクロロピリジンからなる不活性塩素化合物が75乃至95%重量、及び2-セカンダリブチルフェニル-N-メチルカーバメート若しくはジシクロヘキシルビスジチオカーバメート、或いはマンガンビスエチレンビスジチオカーバメートからなるカーバメート系化合物が5乃至20%重量の割合で構成される抗菌成分が、少なくとも水に対して700ppm以上の濃度で混合希釈されてなることを特徴とするセメント、石膏用抗菌液剤。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明はセメントや石膏等水と適宜の骨材とを混練してコンクリートやモルタルとして構造体や上塗材として、或いは石膏ボード等にて凝固形成させる場合に、予め水に所要割合に抗菌成分を希釈させることにより抗菌成分を凝固形成物全体に均質に分散させ、以って細菌類や黴菌類或いは酵母菌類の付着繁殖による汚着や汚損を防止するセメント、石膏用抗菌液剤に関するものである。

## 【0002】

【従来技術】セメントは水と砂や砂利等の骨材とを適宜割合に混練しコンクリートとなし、主に建物や施設等の構造体を凝固形成するために用いられており、或いは水と砂とを適宜割合に混練しモルタルとなしたるうえ、コンクリート構造体の上塗材等に用いられ、更に石膏は主に水と混練し平板状に凝固形成させたうえ、その両側面をボード原紙で被覆成型させた所謂石膏ボードとなしたるうえ、建物等の内壁材や天井材等に広く使用されている。

【0003】ところで我が国は比較的温暖多湿な気候風土にあり、且近年では建物や施設等が鉄筋コンクリートや鉄骨コンクリート構造に加えてアルミサッシュや新建材等の採用に伴い内部空間の密閉性が著しく高まり、而も暖房機器等の普及も相俟って建物や施設等の内部空間が年間を通して温暖化しており、これがため該内部空間は細菌類や黴菌類或いは酵母菌類等菌類の恰好の繁殖条件を具備することとなり、通風の悪い内部空間の壁面や天井面或いは家具や機器等の配設された裏側壁面若しくは水回り設備近傍の壁面等には、該菌類等の繁殖に伴うシミ、斑点、変色等の汚着が短期に招来され、更には該菌類等の繁殖に伴って排出される分泌物によりコンクリートやモルタル等の構造体や石膏ボード自体の脆化や劣化等の汚損も招来されている。

【0004】したがって現状においては該菌類等の繁殖による汚着が発見された場合には、次亜塩素酸ソーダや過酸化水素水等の薬品を用いて殺菌殺黴のうえ洗浄除去することがなされているものの、これら薬品は繁殖中の菌類等は殺菌殺黴しえすが既に招来されたシミ、斑点、

変色等については洗浄できず、且別途洗剤等による洗浄によってもその除去が極めて至難であり、而もその分泌物により招来されたコンクリートやモルタル構造体や石膏ボード自体の脆化や劣化には何等の対処もできず、且これら薬品は揮散するため危険性も極めて高く、密閉空間内での使用には格段の注意も要求される。

## 【0005】

【発明が解決しようとする課題】これがため近年では揮散性がなく且細菌類や黴菌類或いは酵母菌類等の菌類に対し殺菌性や殺黴性所謂抗菌性を保持する薬剤として尿素系化合物やアニリド系化合物或いは環状アミド系化合物等に代表される所謂アミド系化合物、アミン塩、第4級アンモニウム塩、ベンズイミダゾール系化合物、カーバメート化合物グアニジン誘導体、有機ハロゲン化合物、ヨードプロパギル化合物、フェノール類、ピリジン系化合物、チオシアノ化合物、ジチオカルバミン酸系化合物、トリアゾール系化合物、チアジアジン系化合物等が開発上市されているが、これら薬剤等は多くは常態において結晶粉状であるばかりか比重も略1.0に近く、従ってセメントや石膏と混練する場合には比重差により均質な分散がなせず、而も水に対しても不溶性のものが殆んどであるから水に希釈して分散混練することもできず、更にそれぞれの薬剤は細菌類や黴菌類或いは酵母菌類に対しての抗菌性を著しく異にするため、コンクリートやモルタル等の構造体や上塗材全体に亘って均質に薬剤を分散させることが不可能なばかりか、汚着や汚損の原因となる細菌類や黴菌類或いは酵母菌全般に亘っての抗菌性も期待できない。

【0006】本発明はかかる実情に鑑みなされたものであって、本発明はセメントや石膏を凝固形成させる水に希釈分散でき、且細菌類や黴菌類或いは酵母菌類等菌類全般に亘って抗菌性を発揮し汚着や汚損を防止できるセメント、石膏用抗菌液剤を提供することにある。

## 【0007】

【課題を達成するための手段】上述の課題を達成するために本発明が採用した技術的手段は、水に可溶で更に黴菌類に対し強い抗菌スペクトルを有するテトラクロロイソフタロニル若しくは4-メチルスルホニルテトラクロロピリジン系からなる不活性塩素化合物が75乃至95%重量と、水に可溶で細菌類や酵母菌類に対し強い抗菌スペクトルを有する2-セカンダリブチルフェニル-N-メチルカーバメート若しくはジシクロヘキシルビスジチオカーバメート、或いはマンガンビスエチレンビスジチオカーバメートからなるカーバメート系化合物が5乃至25%重量の割合で構成される抗菌成分が、少なくとも水に対して700ppm以上の濃度を以って混合が希釈されてなるセメント、石膏用抗菌液剤に存する。

## 【0008】

【作用】本発明の構成は以下のような作用を有する。即ち抗菌液剤がテトラクロロイソフタロニル若しくは4

ーメチルスルホニルテトラクロロビリジンからなる不活性塩素化合物と、2-セカンダリーブチルフェニル-N、メチルカーバメート若しくはジシクエチレンビスジチオカーバメート、或いはマンガニーズエチレンビリジチオカーバメートからなるカーバメート系化合物からなるため、相互が可溶性を有し水に適宜に希釈しえるため、コンクリートやモルタル等の構造体や石膏ボード全体に亘って抗菌液剤が混練により均質に分散される。

【0009】そして不活性塩素化合物は黴菌類に対し強い抗菌性を有し、他方カーバメート系化合物が細菌類や酵母菌類に対して十分な抗菌性を有するものであり、而も黴菌類の抗菌に要する抗菌液剤濃度が細菌類や酵母菌類の抗菌に要する抗菌液剤濃度に比べ略10乃至20倍程度高濃度であるから、不活性塩素化合物を75乃至95%重量、カーバメート系化合物を5乃至25%重量で構成することにより、細菌類や黴菌類、或いは酵母菌類等菌類全般に亘って極めて有効な抗菌がなされる。

【0010】

【実施例】以下に本発明の実施例を詳細に説明すれば、本発明においてはセメントと水及び砂や砂利等の骨材とを混練のうえ凝固形成するコンクリートやモルタル等の構造体やその上塗材、或いは石膏と水と混練のうえ凝固形成させてなる石膏ボード等の全体に、亘って、細菌類を初め黴菌類や酵母菌類等の菌類が付着且繁殖して招来される汚着や汚損の防止を図るうえからは、使用安全性が高く且残効性を有し而も細菌類や黴菌類或いは酵母菌類等菌類全般に亘って抗菌性を有する抗菌成分が、コンクリートやモルタル或いは石膏ボード全体に均質に分散されることにある。

【0011】そこで使用安全性が高く且残効性に優れた抗菌剤としてはアミド系化合物を初め、アミン塩、第4級アンモニウム塩、ベンズイミダゾール系化合物、カーバメート系化合物、 $\alpha\beta$ 不飽和カルボニル化合物、グアニジン誘導体、有機ハロゲン化合物、不活性塩素化合物、ヨードアロバールギル系化合物、フェノール類、ビリジン系化合物、N-ハロアルキルチオ系化合物、チオシアノ系化合物、ジチオカルバミン酸系化合物、トリアゾール系化合物、チアジアジン系化合物、チオファネート

メチル系化合物等が挙げられる。

【0012】そしてこれら抗菌剤をコンクリートやモルタル或いは石膏ボード等凝固形成される物全体に均質に分散させる手段としては、セメント若しくは石膏自体に予め分散混合させておく場合と、混練させる場合に用いる水に予め希釈分散させることが提案される。

【0013】而して該列挙されてなる抗菌剤はいづれも常態においては結晶状微粉末を有するものであるから、予めセメントや石膏に分散混合させておくことが好都合であるが、セメントや石膏はその比重が略3.0程度であるものの該抗菌剤等の比重は略1.0乃至1.2程度であって比重差が大きく、従って分散混合させるために混練させてもその比重差により均質な分散混合が実現できない。

【0014】更に他の手段として提案された水に予め希釈分散させる方法においても、該抗菌剤の殆んどについては水に対し不溶性であることから、本発明に採用しえる抗菌剤としては水に可溶な不活性塩素化合物、カーバメート系化合物及びビリジン系化合物が摘示される。

【0015】ところで菌類の付着繁殖により招来される、シミ、斑点、変色等の所謂汚着やその分泌物により招来される脆化や劣化所謂汚損は、細菌類による場合や黴菌類による場合或いは酵母菌類による場合等が考えられるから、汚着や汚損の防止のうえからは菌類全般に亘っての抗菌性を保持するものが望まれる。しかしながら抗菌剤はそれぞれ細菌類や黴菌類或いは酵母菌類に対し異なる抗菌スペクトルを有するため、菌類全般に亘って効果的に抗菌性を発揮させるためには、それぞれの抗菌剤の持つ抗菌スペクトルを有効に利用せねばならない。

【0016】そこで不活性塩素化合物を代表するテトラクロイソフタロニル、カーバメート系化合物を代表する2-セカンダリーブチルフェニル-N-メチルカーバメート及びビリジン系化合物を代表する2-ビリジンチオールナトリウム-1-オキシドについての細菌類、黴菌類及び酵母菌類に対する抗菌性について最少発育阻止濃度所謂MIC値で調べてみると表1の通りとなる。

【0017】

【表1】

抗菌剤の各種菌類に対する最少発育阻止濃度 (MIC値 ppm)				
	菌 名	不活性塩 素化合物	カーバメート 系化合物	ピリジン 系化合物
菌類	<i>Aspergillus niger</i>	20	50	30
	<i>Aspergillus flavus</i>	35	110	60
	<i>Penicillium citrinum</i>	25	80	55
	<i>Mucor spinescens</i>	10	50	20
	<i>Cladosporium resinae</i>	20	30	30
	<i>Pullularia pullulans</i>	25	30	30
	<i>Trichoderma T-1</i>	30	50	80
	<i>Chaetomium globosum</i>	15	30	25
	<i>Fusarium moniliforma</i>	30	90	50
細菌	<i>Bacillus subtilis</i>	10	7	15
	<i>Bacillus cereus</i>	10	3	5
	<i>Escherichia coli</i>	5	2	2
	<i>Enterobacter aerogenes</i>	5	3	10
	<i>Pseudomonas aerogenes</i>	5	5	5
	<i>Pseudomonas fluorescens</i>	15	5	8
	<i>Staphylococcus aureus</i>	5	2	3
酵母菌	<i>Candida albicans</i>	20	10	20
	<i>Phodotorula minuta</i>	5	5	10
	<i>Rhodotorula mucilaginosa</i>	5	5	10
	<i>Rhodotorula texensis</i>	10	10	10
	<i>Saccharomyces cerevisiae</i>	15	15	30

【0018】表1から明らかなように、不活性塩素化合物のテトラクロロイソフタロニルの微生物類に対する抗菌性は、カーバメート系化合物やピリジン系化合物に比べて著しく優れており、反面細菌類及び酵母菌類に対してはカーバメート系化合物が他の不活性塩素化合物やピリジン系化合物に比べて著しい抗菌性を有するものであることが理解できる。

【0019】更に該表1から不活性塩素化合物の微生物類に対する最少発育阻止濃度は、カーバメート系化合物の細菌類や酵母菌類に対する最少発育阻止濃度に比べて略3乃至17倍程度であることが判断されるものであるから細菌類、微生物類及び酵母菌類全体に亘って効果的に抗菌作用を発揮させる抗菌成分としてはテトラクロロイソフタロニル若しくは4-メチルスルホニルテトラクロロピリジンからなる不活性塩素化合物が75乃至95%重量で、且2-セカンダリーブチルフェニル-N-メチルカーバメートやジメチルエチレンビスジチオカーバメート、或いはマンガンエチレンビスジチオカーバメートからなるカーバメート系化合物が5乃至25%重量の割合で構成されることにある。

【0020】而してコンクリートはセメント量1に対し骨材として砂の量が2、砂利の量が4乃至5の割合量で混練され、またモルタルにおいてはセメント量1に対し骨材としての砂が2の割合量で混練されるものであって、かかる場合におけるセメントの水和に要する水の量\*50

\*はセメント量の略3.5乃至3.7%程度とされているものであるから、水量に対する全体量の増加分の割合はコンクリートの場合には略1.5乃至1.8倍、モルタルの場合では略6乃至7倍、石膏ボードでは略3.5乃至4倍程度となる。

【0021】してみると抗菌成分を構成する不活性塩素化合物の微生物類に対する最少発育阻止濃度として最も高い濃度値の菌類では少なくとも35ppmが要求されるものであるから、水に対して該抗菌成分を700ppm以上に希釈分散させることにより、コンクリートを初めモルタル或いは石膏ボード等の凝固形成物全体に亘って抗菌成分が均質に分散しえ、且菌類全般に亘って抗菌性が発揮されて汚着、汚損の防止を図ることのできる本発明セメント、石膏用抗菌液剤が作成される。

【0022】

【発明の効果】以上説明の如く、本発明は微生物類に対し強い抗菌性を有する不活性塩素化合物と、細菌類及び酵母菌類に対して強い抗菌性を有するカーバメート系化合物とにより抗菌成分が構成され、而もその抗菌性を有効に発揮する最少発育阻止濃度の割合を以って抗菌成分割合も構成されてなるから、細菌類を初め微生物類或いは酵母菌類等の菌類全体に亘って抗菌性が発揮され、而もセメントや石膏と水とを和する水に少なくとも700ppm以上の濃度を以って該抗菌成分が希釈分散されてなるため、コンクリートやモルタル或いは石膏ボード等の凝固

形成物の全体に均質に分散されるから、汚着や汚損防止も全体に亘ってなされる等多くの特徴を有するセメン

ト、石膏用抗菌液剤といえる。

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TITLE: Antimicrobial liq. agents for cement and gypsum - contain inert chlorine cpd. e.g. 4-methyl-sulphonyl-tetra:chloro-pyridine and e.g. 2-sec. butyl-phenyl-N-methyl-carbamate

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ABSTRACTED-PUB-NO: JP 08225415A

BASIC-ABSTRACT:

Antimicrobial liq. agents contain at least 700 ppm mixts. of 75-95 wt. % inert chlorine cpd. comprising tetrachloroisopht halonitrile (A) or 4-methylsulphonyltetrachloropyridine (B), and 5-20 wt. % 2-sec-butylphenyl-N-methylcarbamate (C) or zinc ethylenebisdithiocarbamate (D), or manganese ethylenebis di thiocarbamate (E).USE/ADVANTAGE - Used in cement or gypsum in an amt. of at least 700 ppm. Homogenous dispersion of antimicrobial agents covering bacteria, fungi and yeasts may be obtd.In an example, inert chlorine cpds., carbamates and pyridine cpd. exhibited antimicrobial activity (MIC) against fungi at bacteria at concn. of 5-15, 2-7 and 2-15 ppm, respectively, and yeast at concn. of 5-20, 5-15 and 10-30 ppm, respectively.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: ANTIMICROBIAL LIQUID AGENT CEMENT GYPSUM CONTAIN INERT CHLORINE COMPOUND METHYL SULPHONYL TETRA CHLORO PYRIDINE SEC BUTYL PHENYL N METHYL CARBAMATE

DERWENT-CLASS: C03 D22 E19 L02

CPI-CODES: C07-D04C; C10-A12C; C10-A15; C14-A01; C14-A04; C14-A06; D09-A01; E05-L03A; E05-L03C; E07-D04C; E10-A12B2; E10-A15A; L02-D14M;

CHEMICAL-CODES:

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**CLAIMS**

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[Claim(s)]

[Claim 1] Cement, antibacterial liquids and solutions for gypsum fibrosum with which the antibacterial component which comes to consist of [ 5 thru/or a rate of 20% weight ] the carver mate system compounds with which the inactive chlorine compound which consists of tetra-chloro iso phtalo nil or a 4-methyl sulfonyl TETORAKUORO pyridine consists of 75 thru/or 95% weight, and 2-secondary butylphenyl-N-methyl carver NETO, zinc ethylenebisdithiocarbamate, or manganese ethylenebis dithiocarbamate is characterized by coming to carry out mixed dilution by the concentration of 700 ppm or more to water at least.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Industrial Application] This invention kneads water, such as cement and gypsum fibrosum, and the proper aggregate. As concrete or mortar as the structure or glazing material Or when carrying out coagulation formation with plaster board etc., the whole coagulation formation object is made to distribute an antibacterial component to homogeneity by making water dilute an antibacterial component in necessary proportion beforehand. with -- \*\*\*\* -- it is related with the antibacterial liquids and solutions for cement and gypsum fibrosum which prevent the \*\* arrival and dirt by adhesion propagation of bacteria, bacilli, or yeast fungi.

[0002]

[Description of the Prior Art] Cement kneads water and bone agents, such as sand and ballast, in proportion suitably. Concrete and nothing, it uses in order to mainly carry out coagulation formation of the structures, such as a building and a facility, -- having -- \*\*\*\* -- or water and sand -- suitably -- comparatively -- alike -- kneading -- mortar and nothing slack -- a top the so-called plaster board which carried out covering molding of the both-sides side with board stencil paper after being used for the glazing material of the concrete structure etc., mainly kneading gypsum fibrosum with water further and making plate-like carry out coagulation formation, and nothing slack -- it is widely used for wall material, head-lining material, etc., such as a building, the top.

[0003] By the way, our country is in a comparatively warm humid climate climate, and, in addition to a reinforced concrete or steel framed concrete structure, the sealing nature of a building envelope increases [ a building a facility, etc. ] remarkably with adoption of an aluminum sash, new synthetic building materials, etc. in \*\*\*\*\*. Building envelopes, such as a building and a facility, are carrying out warming also of the spread of space heating appliances etc. also for \*\* through every year conjointly. This will accumulate and this building envelope will possess the suitable propagation conditions of funguses, such as bacteria, and bacilli or yeast fungi. On the arranged background wall surface or the wall surface near the place-equipped-with-a-water-supply facility, the wall surface of the bad building envelope of ventilation, a head-lining side or furniture, a device, etc. \*\* arrival, such as silverfish accompanying propagation of this fungus etc., a spot, and discoloration, is invited over a short period of time, and dirt of embrittlement of the structures, such as concrete and mortar, or the plaster board itself, degradation, etc. is also invited with the secrete further discharged with propagation of this fungus etc.

[0004] therefore, when the \*\* arrival by propagation of this fungus etc. is discovered in the present condition chemicals, such as sodium hypochlorite and hydrogen peroxide solution, -- using -- sterilization \*\*\*\*\* , although carrying out washing removal a top is made The silverfish to which, as for these chemicals, antimicrobial and antifungal \*\*\*\*\* was already invited, as for the fungus under propagation etc., Cannot wash about a spot and discoloration but the removal is very the most difficult also by washing by a \*\* special detergent etc. \*\* is not made as for any management to embrittlement or degradation of the concrete or the murbruk structure object which were invited with the secrete, or the plaster board itself, either, but since a \*\*\*\*\* chemical vaporizes, its danger is also very high, and marked cautions are also required of use in a closed space.

[0005]

[Problem(s) to be Solved by the Invention] The so-called amide system compound represented by a urea system compound, an anilide system compound or a cyclic amide system compound, etc. as drugs which this accumulates, and there is no vaporization nature and hold disinfectant and a fungicidal \*\*\*\*\* antibacterial to funguses, such as \*\*\*\*\* , and bacilli or yeast fungi, in recent years, an amine salt, quarternary ammonium salt, A benzimidazole system compound, a carver mate compound guanidine derivative, Although development Kamiichi of an organic halogenated compound, an iodine propargyl compound, phenols, a pyridine system compound, a thio cyano compound, a dithiocarbamic acid system compound, a triazole system compound, the thiadiazin system compound, etc. is carried out Many set these drugs etc. to an ordinary state. About [ that it is crystal powder ] or specific gravity to abbreviation 1.0 Near, Therefore, when kneading with cement and gypsum fibrosum, homogeneous distribution cannot make



according to a specific gravity difference. Since it cannot dilute in water and it cannot carry out distributed kneading of the \*\* to water, either, since an insoluble thing is \*\*\*\*\*, but each drugs differ in antibacterial [ over bacteria, bacilli, or yeast fungi ] remarkably further, Antibacterial [ covering a yeast fungus the bacteria leading to about / that it is impossible to cover the structures, such as concrete and mortar and the whole glazing material and to make homogeneity distribute drugs /, \*\* arrival, or dirt, bacilli, or at large ] is not expectable.

[0006] It is in offering the antibacterial liquids and solutions for cement and gypsum fibrosum which this invention is made in view of this actual condition, and this invention can carry out diluent powder to the water which carries out coagulation formation of cement or the gypsum fibrosum, cover funguses at large, such as \*\*\*\*\*, and bacilli or yeast fungi, demonstrate antibacterial, and can prevent \*\* arrival and dirt.

[0007]

[Means for Achieving the Goal] The technical means which this invention adopted in order to attain an above-mentioned technical problem The inactive chlorine compound which consists of the tetra-chloro iso phtalo nil or 4-methyl sulfonyl TETORAKURORO pyridine system which is meltable in water and has a strong antimicrobial spectrum to bacilli further 75 thru/or 95% weight, The 2-secondary buthylphenyl-N-methyl carver mate or zinc ethylenebisdithiocarbamate which is meltable in water and has a strong antimicrobial spectrum to bacteria or yeast fungi, or the antibacterial component of 5 thru/or 25% weight from which the carver mate system compound which consists of a manganese ethylenebis dithio carver mate comes out comparatively and which it consists of -- at least -- water -- receiving -- the concentration of 700 ppm or more -- with -- \*\*\*\* -- it consists in the antibacterial liquids and solutions for cement and gypsum fibrosum with which it comes to dilute mixing.

[0008]

[work --] for The configuration of this invention has the following operations. That is, since mutual has fusibility since antibacterial liquids and solutions consist of an inactive chlorine compound which consists of tetra-chloro iso phtalo nil or a 4-methyl sulfonyl TETORAKURORO pyridine, and a carver mate system compound which consists of 2-sender reeve chill phenyl-N, a methyl carver mate, zinc ethylenebisdithiocarbamate, or manganese ethylene pilus dithiocarbamate, and it can dilute suitably in water, the whole structures and whole plaster board, such as concrete and mortar, are covered, and antibacterial liquids and solutions are distributed by homogeneity by kneading.

[0009] And an inactive chlorine compound is that in which it has antibacterial [ strong ] to bacilli and an another side carver mate system compound has antibacterial [ sufficient ] to bacteria or yeast fungi. Since the antibacterial liquids-and-solutions concentration which antibacterial [ of bacilli ] also takes \*\* is abbreviation 10 thru/or about [ 20 time ] high concentration compared with the antibacterial liquids-and-solutions concentration which antibacterial [ of bacteria or yeast fungi ] takes By constituting 75 thru/or 95% weight, and a carver mate system compound for an inactive chlorine compound from 5 thru/or 25% weight, funguses at large, such as bacteria, and bacilli or yeast fungi, are covered, and antibacterial [ very effective ] is made.

[0010]

[Example] The structures and glazing material of those, such as concrete which will carry out coagulation formation after kneading the aggregates, such as cement, water and sand, and ballast, in this invention if the example of this invention is explained below at a detail, and mortar, To the plaster board which comes to carry out coagulation formation after kneading with gypsum fibrosum and water [ whole / or ] From in [ aiming at prevention of the \*\* arrival invited by continuing and funguses, such as bacilli and yeast fungi, carrying out adhesion \*\*\*\*\* of the bacteria at first, or dirt ] The antibacterial component for which it has \*\*\*\*\* highly, \*\* also covers funguses at large, such as bacteria, and bacilli or yeast fungi, and operating safety has antibacterial is for concrete, mortar, or the whole plaster board to distribute at homogeneity.

[0011] Then, as an antimicrobial agent operating safety excels [ antimicrobial agent ] in \*\*\*\*\* highly, an amine salt, quarternary ammonium salt, a benzimidazole system compound, a carver mate system compound, \*\*\*\* partial saturation carbonyl compound, a guanidine derivative, an organic halogenated compound, an inactive chlorine compound, an iodine propargyl system compound, phenols, a pyridine system compound, N-halo alkylthio system compound, thio cyano compound, a JICHIO carbamic acid system compound, a triazole system compound, a thiadiazin system compound, a thiophanate-methyl system compound, etc. are mentioned at first in an amide system compound.

[0012] And carrying out diluent powder to the water used when making cement or gypsum fibrosum itself knead with the case where distributed mixing is carried out beforehand, as a means to make the whole object by which coagulation formation is carried out, such as concrete, and mortar or plaster board, distribute these antimicrobial agents to homogeneity beforehand is proposed.

[0013] By \*(ing), although the thing this made for cement and gypsum fibrosum to carry out distributed mixing beforehand since the antimicrobial agent which it comes to enumerate all has crystal-like impalpable powder in an ordinary state is convenient The specific gravity of this antimicrobial agent etc. is abbreviation 1.0 thru/or about 1.2, a specific gravity difference is large, therefore in order to carry out distributed mixing, even if it makes it knead, homogeneous distributed mixing is unrealizable, although the specific gravity of cement or gypsum fibrosum is about

3.0 abbreviation with the specific gravity difference.

[0014] Furthermore, also in the approach of carrying out diluent powder to the water proposed as other means beforehand, about \*\*\*\*\* of this antimicrobial agent, to water, since it is insolubility, as an antimicrobial agent which can be adopted as this invention, a meltable inactive chlorine compound, a carver mate system compound, and a pyridine system compound are indicated by water.

[0015] By the way, since the case where it is based on yeast fungi etc. can be considered when based on the case where the embrittlement and degradation \*\*\*\* dirt which are invited with the so-called \*\* arrival and its so-called secrete, such as the silverfish and the spot which are invited by adhesion propagation of a fungus, and discoloration, are based on bacteria, or bacilli or, a thing holding antibacterial [ covering a fungus at large after \*\* arrival and dirt preventing ] is desired. However, in order to cover a fungus at large since an antimicrobial agent has an antimicrobial spectrum which is different to bacteria, bacilli, or yeast fungi, respectively, and to demonstrate antibacterial effectively, it must use effectively the antimicrobial spectrum which each antimicrobial agent has.

[0016] Then, if it investigates with a minimum growth inhibition concentration \*\*\*\* Media Interface Connector value about antibacterial [ over the bacteria about the 2-pyridine thiol sodium-1-oxide representing the 2-secondary buthylphenyl-N-methyl carver mate and pyridine system compound representing the tetra-chloro iso phtalo nil representing an inactive chlorine compound, and a carver mate system compound, bacilli, and yeast fungi ], it will become as in Table 1.

[0017]

[Table 1]

抗菌剤の各種菌類に対する最少発育阻止濃度 (MIC値ppm)				
	菌名	不活性塩素化合物	カーバメート系化合物	ピリジン系化合物
黴菌類	Aspergillus niger	20	60	30
	Aspergillus flavus	35	110	60
	Penicillium citrinum	25	80	55
	Mucor spinescens	10	50	20
	Cladosporium resinae	20	30	30
	Pullularia pullulans	25	30	30
	Trichoderma T-1	30	60	80
	Chaetomium globosum	15	30	25
	Fusarium moniliforma	30	90	60
細菌類	Bacillus subtilis	10	7	15
	Bacillus cereus	10	3	5
	Escherichia coli	5	2	2
	Enterobacter aerogenes	5	3	10
	Pseudomonas aerogenes	5	5	5
	Pseudomonas fluorescens	15	5	8
	Staphylococcus aureus	5	2	3
酵母菌類	Candida albicans	20	10	20
	Phodotorula minuta	5	5	10
	Rhodotorula mucilafinos	5	5	10
	Rhodotorula texensia	10	10	10
	Saccaromyces cerevisiae	15	15	30

[0018] antibacterial [ as opposed to / so that clearly from Table 1 / the bacilli of the tetra-chloro iso phtalo nil of an inactive chlorine compound ] -- a carver mate system compound and a pyridine system compound -- comparing -- a \*\*\*\*\* cage, opposite side bacteria, and yeast fungi -- receiving -- the inactive chlorine compound and pyridine system compound of others [ compound / carver mate system ] -- comparing -- \*\*\*\*\* -- he can understand that it is what has antibacterial.

[0019] Furthermore, the minimum growth inhibition concentration to the bacilli of an inactive chlorine compound from this table 1 Since it is judged compared with the minimum growth inhibition concentration to bacteria and the yeast fungi of a carver mate system compound that they are abbreviation 3 thru/or about 17 times, bacteria, The inactive chlorine compounds which consist of tetra-chloro iso phtalo nil or a 4-methyl sulfonyl TETORAKURORO pyridine as an antibacterial component which bacilli and the whole yeast fungi are covered [ component ] and demonstrates an antibacterial action effectively are 75 thru/or 95% weight. It is in the carver mate system compound which consists of a

\*\* 2-secondary buthylphenyl-N-methyl carver mate, zinc ethylenebisdithiocarbamate, or manganese ethylenebis dithiocarbamate consisting of 5 thru/or a rate of 25% weight.

[0020] \*\* and, as for concrete, the amount of 2 and ballast is kneaded for the amount of sand in the amount of rates of 4 thru/or 5 as the aggregate to the amount 1 of cement. Moreover, it is that by which the sand as the aggregate is kneaded in the amount of rates of 2 to the amount 1 of cement in mortar. Since the amount of the water which the hydration of the cement in this case takes is made into the abbreviation 35 for the amount of cement thru/or about 37% In the case of concrete, in the case of mortar [ abbreviation 15 thru/or 18 times, and ], the rate of the increment of the amount of whole to amount of water becomes abbreviation 3.5 thru/or about 4 times with abbreviation 6 thru/or 7 times, and plaster board.

[0021] Then, since the fungus of the highest concentration value as minimum growth inhibition concentration to the bacilli of the inactive chlorine compound which constitutes an antibacterial component requires at least 35 ppm By carrying out diluent powder of this antibacterial component to 700 ppm or more to water The whole coagulation formation object, such as mortar or plaster board, is covered at first, an antibacterial component may distribute concrete to homogeneity, \*\*\*\*\* at large is covered, antibacterial is demonstrated and \*\* arrival, this invention cement which can aim at prevention of dirt, and the antibacterial liquids and solutions for gypsum fibrosum are created.

[0022]

[Effect of the Invention] The inactive chlorine compound with which this invention has antibacterial [ strong ] to bacilli like explanation above, An antibacterial component is constituted by the carver mate system compound which has antibacterial [ strong ] to bacteria and yeast fungi. the rate of the minimum growth inhibition concentration that \*\* also demonstrates antibacterial [ the ] effectively -- with -- \*\*\*\*, since it comes to also constitute an antibacterial component rate the water which the whole fungus, such as bacilli or yeast fungi, is covered at first in bacteria, and antibacterial is demonstrated, and also hydrates \*\* with cement and gypsum fibrosum -- the concentration of at least 700 ppm or more -- with -- \*\*\*\*, since it comes to carry out diluent powder of this antibacterial component Since the whole coagulation formation object, such as concrete, and mortar or plaster board, distributes at homogeneity, \*\* arrival and dirt prevention can also be called antibacterial liquids and solutions for cement and gypsum fibrosum which have many descriptions, such as covering the whole and being made.

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